

LISTING OF THE CLAIMS

1. (Currently Amended) A multimodal polymer composition comprising
 - ~~a.~~ at least one polymer (A) having a weight average molecular weight (M_w) of ~~lower~~ less than 60000 g/mol;
 - ~~b.~~ at least one polyolefin (B) having a higher weight average molecular weight (M_w) than ~~the~~ polymer (A); and
 - ~~c.~~ a filler (~~C~~), ~~whereby~~ wherein the polymer composition without ~~the~~ filler (C) has a density of 940 kg/m³ or lower.
2. (Currently Amended) A polymer composition according to claim 1 ~~characterized in that~~ wherein the at least one polymer (A) is
 - (1) a polyolefin (1) having a weight average molecular weight (M_w) of 10000 to less than 60000 g/mol, or
 - (2) a wax having weight average molecular weight (M_w) of less than 10000 g/mol.
3. (Currently Amended) A polymer composition according to claim ~~2~~ 1 ~~characterized in that~~ wherein the at least one polymer (A) is
 - (1) a polyolefin (1) having a weight average molecular weight (M_w) of 10000 to less than 60000 g/mol, or
 - (2) a wax having weight average molecular weight (M_w) of less than 10000 g/mol, and wherein

the polyolefin (1) is a low density polyethylene (LDPE), a linear low density polyethylene (LLDPE) or a linear medium density polyethylene (LMDPE).
4. (Currently Amended) A polymer composition according to claim ~~2 or 3~~ 1 ~~characterized in that~~ wherein the at least one polymer (A) is
 - (1) a ~~ol~~ olefin (1) havin a wei ht avera e molecular wei ht M_w of 10000 to less than 60000 g/mol, or
 - (2) a wax (2) having weight average molecular weight (M_w) of less than 10000 g/mol, and wherein

the wax (~~2~~) is selected from one or more of

- (2a) a polypropylene wax having weight average molecular weight (M_w) of less than 10000 g/mol or a ~~polypropylene~~ polyethylene wax having weight average molecular weight (M_w) of less than 10000 g/mol, or
- (2b) an alkyl ketene dimer wax having weight average molecular weight (M_w) of less than 10000 g/mol.
5. (Currently Amended) A polymer composition according to ~~any one of the preceding claims 2 to 4~~ claim 1 ~~characterized in that~~ wherein the composition comprises
- (1) a polyolefin (1) having a weight average molecular weight (M_w) of 10000 to less than 60000 g/mol as a first polymer (A) and
- (2) a wax having weight average molecular weight (M_w) of less than 10000 g/mol as a ~~further~~ second polymer (A).
6. (Currently Amended) A polymer composition according to ~~any one of the preceding claims 1 to 5~~ claim 1 ~~characterized in that~~ wherein the polymer (A) has a density of lower than 945 kg/m³.
7. (Currently Amended) A polymer composition according to ~~any one of the preceding claims 1 to 6~~ claim 1 ~~characterized in that~~ wherein the multimodal polymer composition is at least a bimodal polymer composition.
8. (Currently Amended) A polymer composition according to ~~any one of the preceding claims 1 to 7~~ claim 1 ~~characterized in that~~ wherein the polyolefin (B) has a weight average molecular weight (M_w) of higher than 80000 g/mol.
9. (Currently Amended) A polymer composition according to ~~any one of the preceding claims 1 to 8~~ claim 1 ~~characterized in that~~ wherein the polyolefin (B) is a polyethylene.
10. (Currently Amended) A polymer composition according to ~~claim 9~~ claim 1 ~~characterized in that~~ wherein the polyolefin (B) is a low density polyethylene (LDPE), a linear low density polyethylene (LLDPE) or a linear medium density polyethylene (LMDPE).

11. (Currently Amended) A polymer composition according to ~~any one of the preceding claims 1 to 10~~ claim 1 ~~characterized in that~~ wherein the total polymer composition comprises 1 to 50 wt% of the polymer (A), 40 to 90 wt% of the polyolefin (B) and 1 to 50 wt% of filler (C).
12. (Currently Amended) A polymer composition according to ~~any one of the preceding claims 1 to 11~~ claim 1 ~~characterized in that~~ wherein the polymer composition without the filler (C) has melt flow rate MFR₂, according to ISO 1133, at 190 °C, of 5 to 20 g/10 min.
13. (Currently Amended) A polymer composition according to ~~any one of the preceding claims 1 to 12~~ claim 1 ~~characterized in that~~ wherein the polymer composition without the filler (C) has melt flow rate MFR₅, according to ISO 1133, at 190 °C, of 20 to 40 g/10 min.
14. (Currently Amended) A polymer composition according to ~~any one of the preceding claims 1 to 13~~ claim 1 ~~characterized in that~~ wherein the polymer composition without the filler (C) has melt flow ratio MFR₅/MFR₂ of 2.5 to 4.5.
15. (Currently Amended) A polymer composition according to ~~any one of the preceding claims 1 to 14~~ claim 1 ~~characterized in that~~ wherein the polymer composition without the filler (C) has a ratio of the weight average molecular weight (M_w) to the number average molecular weight (M_n) of from 8 to 25.
16. (Currently Amended) A polymer composition according to ~~any one of the preceding claims 1 to 15~~ claim 1 ~~characterized in that~~ wherein 95 wt% of the filler (C) has a particle size of less than 10 μm.
17. (Currently Amended) A polymer composition according to ~~any one of the preceding claims 1 to 16~~ claim 1 ~~characterized in that~~ wherein the filler (C) is talc.
18. (Currently Amended) A polymer composition according to ~~any one of the preceding claims 1 to 17~~ claim 1 ~~characterized in that~~ wherein the polymer composition further

comprises ~~additionally~~ antioxidants(s) and/or process stabilizers in an amount of less than 2000 ppm in the total composition.

19. (Currently Amended) A polymer composition according to ~~any one of the preceding claims 1 to 18~~ claim 1 ~~characterized in that~~ wherein the polymer composition is a linear low density polyethylene (LLDPE) or a ~~linear~~ linear medium density polyethylene (LMDPE), ~~whereby~~ and wherein the polymer (A) and polyolefin (B) are produced in a multistep multi-stage polymerization process.
20. (Currently Amended) A polymer composition according to ~~any one of the preceding claims 1 to 19~~ claim 1 ~~characterized in that~~ wherein the polymer composition is a linear low density polyethylene (LLDPE) or a ~~linear~~ linear medium density polyethylene (LMDPE), wherein the polymer (A) and the polyolefin (B) are produced in a multi-stage polymerization process, and wherein the amount of comonomer units in the linear low density polyethylene (LLDPE) or the linear medium density polyethylene (LMDPE) is 0.1 to 1.0 mol %.
21. (Currently Amended) A polymer composition according to ~~claim 19 or 20~~ 1 ~~characterized in that~~ wherein the polymer (A) ~~and the polyolefin (B)~~ composition is a linear low density polyethylene (LLDPE) or a linear medium density polyethylene (LMDPE), whereby wherein the polymer (A) and the polyolefin (B) are produced in a multi-stage polymerization process, wherein each of the polymer (A) and the polyolefin (B) is a linear low density polyethylene (LLDPE) or a linear medium density polyethylene (LMDPE), and wherein the comonomer units are selected from the group consisting of C₃ α -olefin, C₄ α -olefin, C₅ α -olefin, C₆ α -olefin, C₇ α -olefin, C₈ α -olefin, C₉ α -olefin, C₁₀ α -olefin, C₁₁ α -olefin, C₁₂ α -olefin, C₁₃ α -olefin, C₁₄ α -olefin, C₁₅ α -olefin, C₁₆ α -olefin, C₁₇ α -olefin, C₁₈ α -olefin, C₁₉ α -olefin and C₂₀ α -olefin.
22. (Currently Amended) A polymer composition according to ~~any one of the preceding claims 1 to 18~~ claim 1 ~~characterized in that~~ wherein the polymer (A) is a wax ~~(2) according to claim 4~~ selected from one or more of

- (1) a polypropylene wax having weight average molecular weight (M_w) of less than 10000 g/mol or
(2) a polyethylene wax having weight average molecular weight (M_w) of less than 10000 g/mol, or
(3) an alkyl ketene dimer wax having weight average molecular weight (M_w) of less than 10000 g/mol, and wherein the polyolefin (B) is a linear low density polyethylene (LLDPE) or low density polyethylene (LDPE).
23. (Currently Amended) A polymer composition according to claim ~~22~~ 1 ~~characterized in that~~ wherein the poly ~~or~~ (A) is a wax selected from one or more of
(1) a polypropylene wax having weight average molecular weight (M_w) of less than 10000 g/mol or
(2) a polyethylene wax having weight average molecular weight (M_w) of less than 10000 g/mol, or
(3) an alkyl ketene dimer wax having weight average molecular weight (M_w) of less than 10000 g/mol, and
the polyolefin (B is a linear low density polyethylene (LLDPE) or low density polyethylene (LDPE), and wherein the polymer composition further comprises additionally a polyolefin (1) being a linear low density polyethylene (LLDPE) as a further second polymer (A), wherein the polyolefin (1) is a linear low density polyethylene (LLDPE).
24. (Currently Amended) A polymer composition according to claim ~~20 or 21~~ 1 ~~characterized in that~~ wherein the polymer composition is a linear low density polyethylene (LLDPE), whereby wherein polymer (A) and polyolefin (B) are produced in a multi-stage polymerization process, wherein the amount of comonomer units in a linear low density polyethylene (LLDPE) is 0.1 to 1.0 mol %, and the polyolefin (1) (polymer (A)) of polymer A being is a linear low density polyethylene (LLDPE) and is the lower molecular weight fraction of LLDPE, and the polyolefin (B) being is a linear low density polyethylene (LLDPE) and is the higher molecular weight fraction of the LLDPE.

25. (Currently Amended) A polymer composition according to claim ~~24~~ 1 ~~characterized in that~~ wherein the polymer composition is a linear low density polyethylene (LLDPE), wherein the polymer (A) and the polyolefin (B) are produced in a multi-stage polymerization process, wherein the amount of comonomer units in a linear low density polyethylene (LLDPE) is 0.1 to 1.0 mol %, wherein polyolefin (1) of polymer (A) is a linear low density polyethylene (LLDPE) and is the lower molecular weight fraction of LLDPE, and the polyolefin (B) is a linear low density polyethylene (LLDPE) and is the higher molecular weight fraction of the LLDPE, and wherein the polymer (A) and polyolefin (B) are a mechanical blend, ~~preferably an in-situ blend produced in a multistage polymerization process.~~
26. (Currently Amended) A multi-layer material comprising
~~a~~ a substrate as a first layer (I)
~~b~~ a multimodal polymer composition according to ~~any one of the preceding claims~~ claim 1 as at least a ~~further~~ second layer (II).
27. (Currently Amended) A multi-layer material according to claim 26 ~~characterized in that~~ wherein the substrate is selected from the group consisting of paper, paperboard, aluminium film and plastic film.
28. (Currently Amended) A multi-layer material according to claim 26 ~~or 27 characterized in that~~ wherein the multi-layer material further comprises as a further third layer (III), comprising which comprises a low density polyethylene (LDPE).
29. (Currently Amended) A multi-layer material according to ~~any one of the preceding claims 26 to 28~~ claim 26 ~~characterized in that~~ wherein the low density polyethylene (LDPE) layer (III) has a melt flow rate MFR₂, according to ISO 1133, at 190°C, of at least 5 g/10 min.
30. (Currently Amended) A film comprising a multimodal polymer composition according to ~~any one of the preceding claims 1 to 25~~ claim 1.

31. (Currently Amended) A process for producing ~~a~~ the composition according to ~~any one of the preceding claims 1 to 25~~ claim 1 ~~characterized in that~~ (a) comprising the steps of
- (1) producing the polymer (A) and the polyolefin (B) ~~are produced together~~ in a ~~multistage~~ multi-stage process comprising a loop reactor and a gas phase reactor, wherein the polymer (A) is generated in at least one loop reactor and the polyolefin (B) is generated in a gas phase reactor; and
- (2) blending and compounding the filler (C) and the composition comprising the polymer (A) and the polyolefin (B) ~~are blended together and compounded~~.
32. (Currently Amended) A process for producing ~~a~~ the composition according to claim 31 ~~characterized in that~~ comprising the steps of the catalyst used for the process
- (1) producing the composition comprising the polymer (A) and the polyolefin (B) using a catalyst, wherein the catalyst is a high activity procatalyst comprising a particulate inorganic support, and a chlorine compound deposited on the support, ~~wherein the chlorine compound is the same as or different from the titanium compound, whereby~~
- (2) contacting the inorganic support ~~is contacted~~ with an alkyl metal chloride which is soluble in non-polar hydrocarbon solvents, and has the formula R_nMECl_{3-n} wherein R is a C₁-C₂₀ alkyl group, Me is a metal of group III(13) of the periodic table, n=1 or 2 and m=1 or 2, to give a first reaction product, ~~and~~
- (3) contacting the first reaction product ~~is contacted~~ with a compound containing hydrocarbyl and hydrocarbyl oxide linked to magnesium which is soluble in non-polar hydrocarbon solvents, to give a second reaction product, and
- ~~the first reaction product is contacted with a compound containing hydrocarbyl and hydrocarbyl oxide linked to magnesium which is soluble in non-polar hydrocarbon solvents, to give a second reaction product, and~~
- (4) contacting the second reaction product ~~is contacted~~ with a titanium compound which contains chlorine, having the formula $Cl_xTi(OR^{IV})_{4-x}$ wherein R^{IV} is a C₂-C₂₀ hydrocarbyl group and x is 3 or 4, to give the procatalyst, and wherein the titanium compound which contains chlorine may be the same or different than the chlorine compound used in step 1.

33. (Currently Amended) A process for producing a multi-layer material according to ~~any one of the preceding claims 26 to 29~~ claim 26 ~~characterized in that~~ wherein the multimodal polymer composition ~~according to any one of claims 1 to 25~~ comprises
- ~~a.~~ at least one polymer (A) having a weight average molecular weight (M_w) of less than 60000 g/mol;
 - ~~b.~~ at least one polyolefin (B) having a higher weight average molecular weight (M_w) than polymer (A); and
 - ~~c.~~ a filler (C),
- and wherein the polymer composition without filler (C) has a density of 940 kg/m³ or lower is applied on the substrate by a film coating line comprising an unwind, a wind, a chill roll and a coating die.
34. (Currently Amended) ~~Use of~~ A method for extrusion coating comprising applying to a material to be coated the multimodal polymer composition according to ~~any one of the preceding claims 1 to 25~~ claim 1 for extrusion coating.
35. (Currently Amended) ~~Use~~ The method according to claim 34 ~~characterized in that~~ wherein the ~~polymer extrusion composition according to any one of the preceding claims 1 to 25 is used for extrusion coating producing a multi-layer material according to any one of the claim 26 to 29~~ the material to be coated is a multi-layer material comprising
- ~~a.~~ a substrate as a first layer (I)
 - ~~b.~~ the multimodal polymer composition as at least a second layer (II).
36. (Currentl yAmended) ~~Use of~~ A method comprising preparing a film from the multimodal polymer composition according to ~~any one of the preceding claims 1 to 25~~ claim 1 for a film, preferably for a cast film.
37. (New) The method of claim 25, wherein the mechanical blend is an in-situ blend produced in a multi-stage polymerization process.
38. (New) The method of claim 36, wherein the film is a cast film.

39. (New) A polymer composition according to claim 1 wherein the composition comprises a polyolefin (1) having a weight average molecular weight (M_w) of 10000 to less than 60000 g/mol as the polymer (A) and a wax (2) having weight average molecular weight (M_w) of less than 10000 g/mol as a second polymer (A), wherein the polyolefin (1) is a low density polyethylene (LDPE), a linear low density polyethylene (LLDPE), or a linear medium density polyethylene (LMDPE).
40. (New) A polymer composition according to claim 1 wherein the composition comprises a polyolefin (1) having a weight average molecular weight (M_w) of 10000 to less than 60000 g/mol as the polymer (A) and a wax (2) having weight average molecular weight (M_w) of less than 10000 g/mol as a second polymer (A), wherein the wax (2) is selected from one or more of
- (2a) a polypropylene wax having weight average molecular weight (M_w) of less than 10000 g/mol or a polyethylene wax having weight average molecular weight (M_w) of less than 10000 g/mol, or
- (2b) an alkyl ketene dimer wax having weight average molecular weight (M_w) of less than 10000 g/mol.
41. (New) A polymer composition according to claim 1 wherein the polymer composition is a linear low density polyethylene (LLDPE) wherein the polymer (A) and the polyolefin (B) are produced in a multi-stage polymerization process, the comonomer units are selected from the group consisting of C_3 α -olefin, C_4 α -olefin, C_5 α -olefin, C_6 α -olefin, C_7 α -olefin, C_8 α -olefin, C_9 α -olefin, C_{10} α -olefin, C_{11} α -olefin, C_{12} α -olefin, C_{13} α -olefin, C_{14} α -olefin, C_{15} α -olefin, C_{16} α -olefin, C_{17} α -olefin, C_{18} α -olefin, C_{19} α -olefin and C_{20} α -olefin, and the polyolefin (1) of the polymer (A) is a linear low density polyethylene (LLDPE) and is the lower molecular weight fraction of LLDPE, and the polyolefin (B) is a linear low density polyethylene (LLDPE) and is the higher molecular weight fraction of the LLDPE.
42. (New) A polymer composition according to claim 1 wherein the polymer composition is a linear low density polyethylene (LLDPE), wherein the polymer (A) and the polyolefin (B) are produced in a multi-stage polymerization process, the comonomer

units are selected from the group consisting of C₃ α -olefin, C₄ α -olefin, C₅ α -olefin, C₆ α -olefin, C₇ α -olefin, C₈ α -olefin, C₉ α -olefin, C₁₀ α -olefin, C₁₁ α -olefin, C₁₂ α -olefin, C₁₃ α -olefin, C₁₄ α -olefin, C₁₅ α -olefin, C₁₆ α -olefin, C₁₇ α -olefin, C₁₈ α -olefin, C₁₉ α -olefin and C₂₀ α -olefin, and the polyolefin (1) of the polymer (A) is a linear low density polyethylene (LLDPE) and is the lower molecular weight fraction of LLDPE, and the polyolefin (B) is a linear low density polyethylene (LLDPE) and is the higher molecular weight fraction of the LLDPE, and wherein the polymer (A) and the polyolefin (B) are a mechanical blend.

43. (New) The polymer composition of claim 42, wherein the mechanical blend is an in-situ blend produced in a multi-stage polymerization process.